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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,332	05/30/2001	Chester L. Shepard	50005-20	7709

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EXAMINER

VINCENT, SEAN E

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/870,332	SHEPARD ET AL.
	Examiner	Art Unit
	Sean E Vincent	1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10, 13-15, 19-27, 30-37, 39 and 45 is/are rejected.
- 7) Claim(s) 11, 12, 16-18, 28, 29, 38, 40-44, 46 and 47 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by OIT (slides from Proceedings of the FY 1999 Glass Industry Project Review). The features of applicant's claims are clearly taught in the slides headed "Task 3".

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over OIT.
6. OIT taught temperature determination in portions of a piece of glass by directing a laser pulse ( 380nm) at the glass and determining the fluorescence emission due to ferric and ferrous ions through the thickness of the glass piece (see slides headed “Task 3”). OIT clearly illustrated three thermocouples on the surfaces and in the middle of the glass sample but did not literally specify the determination of temperatures relative to temperatures at the thermocouples with the detected photoluminescence. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine relative temperatures as such because the thermocouples were being employed in an experimental context in the same figure as the laser pulse and emission detector as illustrated. Data gathered from the photoluminescence and the thermocouples would have provided at least a useful calibration of the experimental temperature determination.
7. Claims 39 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over OIT.
8. OIT taught apparatus for the temperature determination in portions of a piece of glass by directing a laser pulse ( 380nm) at the glass and determining the fluorescence emission due to ferric and ferrous ions through the thickness of the glass piece (see slides headed “Task 3”). The focal axis of the detector assembly of OIT was shown to be non-parallel to the laser excitation beam. OIT did not teach more than one detector in a detector assembly. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate more than one detector in the apparatus of OIT because it would appear to involve no more than a mere duplication of parts. A person of ordinary skill in the art would have

recognized the benefit in measuring light emitted from different depths in the glass at the same time instead of in series.

9. Claims 1-10, 20-27 and 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bricker et al (US 4043780) in view of OIT.

10. Bricker et al taught methods and apparatus for monitoring glass sheet temperatures in a heating and air quenching process. Well known optical pyrometers were used to measure the glass sheet temperature and the measured temperatures were used to control the heating burners (see figures and col. 4, lines 20-34; col. 5, lines 35-68; col. 7, lines 31-39; col. 8, lines 46-61; col. 10, lines 22-55 and claim 5). Bricker et al did not teach excitation or measurement of photoluminescence. OIT taught apparatus and methods for the temperature determination in portions of a piece of glass by directing a laser pulse (380nm) at the glass and detecting the fluorescence emission due to ferric and ferrous ions (670nm) through the thickness of the glass piece (see slides headed “Task 3”). OIT further illustrated processor means for determining temperatures from detected emissions. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the OIT temperature measurement technique in the arrangement and methods of Bricker et al because OIT taught that it would enable “real time through-thickness temperature” measurement.

11. With regard to claims 3-5, 21 and 26, Bricker et al did not teach adjusting the cooling fluid flow in response to measured temperatures. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to adjust the flow of quenching air according to sensed temperatures in Bricker et al because it would have added a further degree of control of the quality of the quenched products.

12. With regard to claim 30, OIT and Bricker et al lack a specific teaching of providing temperature profile information to the controller while the glass is being quenched and the temperature profile changing while the glass is being quenched. It is the position of the examiner that the “real time temperature measurement capability” disclosed by OIT is the most compelling reason to use such a technique in the quenching assembly of Bricker et al. The logical conclusion a person of skill in the art would draw in combining OIT with Bricker et al would be that a changing temperature profile of the glass being quenched would be seen during real time through temperature measurement.

13. With regard to claim 33, Bricker et al did not teach activating glass conveyor movers in response to measured temperatures. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to move the glass sheets based on sensed temperatures in Bricker et al because it would have added a further degree of control of the quality of the quenched products.

14. With regard to claim 27, OIT did not specifically state that the detector means and the processor means were integral. A “16 channel segmented PMT” and an “Oscilloscope” were separately illustrated. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the detector and processor integral because it has been held that such a change is considered obvious.

15. With regard to claim 36, Bricker et al did not teach rejecting glass products measured to be outside of predetermined acceptable temperature ranges. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to define acceptable ranges and reject products outside of those ranges because Bricker et al was concerned with the quality

of the glass products. Feedback control of the furnace heating as disclosed would have likely involved some lag time in which the finished product quality would have suffered.

16. With regard to claim 37, OIT did not teach specifically the imaging and correlating of a plurality of photoluminescence responses. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform such imaging and correlating steps in OIT considering the illustrated use of a segmented PMT and multiple thermocouples as shown by OIT. A person of ordinary skill in the art would have recognized the structure illustrated and suggested by OIT.

***Allowable Subject Matter***

17. Claims 11, 12, 16-18, 28, 29, 38, 40-44, 46 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or fairly suggest any of the following noted features. It would not have been obvious to incorporate such features into the arrangements of the prior art:

- a. a substantially continuous excitation beam
- b. detection of scattered excitation light
- c. incorporation of a beam splitter for selectively directing excitation light to a second detector and photoluminescence to a first detector
- d. exciting photoluminescence in a lanthanide or rare earth element

***Conclusion***

19. The prior art made of record and not relied upon is cited to further show the state of the art.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is 703-305-3607. The examiner can normally be reached on M - F (8:30 - 6:00) Second Monday Off.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

22. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Sean E. Vincent  
Primary Examiner  
Art Unit 1731

S Vincent  
July 24, 2003